



UNITED STATES PATENT AND TRADEMARK OFFICE

cen

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/085,219	02/28/2002	David B. Kramer	7-20	6969

7590 08/20/2007
Ryan, Mason & Lewis, LLP
90 Forest Avenue
Locust Valley, NY 11560

EXAMINER

MURPHY, RHONDA L

ART UNIT	PAPER NUMBER
----------	--------------

2616

MAIL DATE	DELIVERY MODE
-----------	---------------

08/20/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/085,219	Applicant(s) KRAMER ET AL.	
	Examiner Rhonda Murphy	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16 and 17 is/are allowed.
- 6) ☒ Claim(s) 1-10 and 18-22 is/are rejected.
- 7) ☒ Claim(s) 11-15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 April 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see pages 6-7, filed 5/4/07, with respect to the rejection(s) of claim(s) 1-10 and 18-20 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of a different embodiment of the previously applied reference.
2. Applicant argues Nguyen and Delp fails to teach or suggest "substantially maintaining the traffic shaping requirement established by the traffic shaping circuitry in the presence of collisions between requests from the transmission elements for each of one or more of the time slots...by moving at least one entry from a first location within the at least one time slot table to a second location within the at least one time slot table. Applicant further asserts "the limitation entails not merely moving at least one entry within a time slot table, but rather doing so in order to maintain a traffic shaping requirement in the presence of collisions between requests from transmission elements for each of one or more time slots." However, Examiner respectfully disagrees, based upon the new ground of rejection made in view of a different embodiment of the Delp reference. Delp teaches moving at least one entry from a first location within the at least one time slot table to a second location within the at least one time slot table (Fig. 7, block 708; col. 7, lines 5-16). In figure 7, block 708 illustrates the movement of the time slot to another time slot. The process is described in column 7, lines 5-16 where when the current time slot is empty, the current time is compared with the current time slot. If

Art Unit: 2616

the current time is greater than the current time slot, then the current time slot is moved forward one time slot.

3. Furthermore, according to the specification on page 13, lines 20-25, and figure 6, moving an entry from one location to another in the time slot table is independent of collisions. The specification describes the element Q5 moving from the fifth time slot to the empty fourth time slot. Delp discloses this scheme of moving a time slot from one location to another. Thus, Examiner believes all claim limitations have been met.

Claim Objections

1. Claim 22 is objected to because of the following informality: It is suggested to rephrase the limitation "An article of manufacture comprising a machine-readable storage medium..." by stating "A computer-readable medium comprising software programs...". Appropriate correction is required.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

Art Unit: 2616

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1 – 10 and 18 – 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen et al. (US 5,712,851) in view of Delp et al. (US 6,477,168).

Regarding claim 1, Nguyen teaches scheduling circuitry (Fig. 1; processor 24) for scheduling data blocks for transmission from a plurality of transmission elements (col. 2, lines 1-24); establishing a traffic shaping requirement for the transmission of the data blocks from the transmission elements (col. 4, lines 39-45); wherein the scheduling circuitry is configured for utilization of at least one time slot table (see Fig. 1), the time slot table comprising a plurality of locations (see Fig. 1), each of the locations corresponding to a transmission time slot and being configured to store at least one entry (col. 4, lines 39-45), the scheduling circuitry being operative in conjunction with the time slot table to schedule the data blocks for transmission in a manner that substantially maintains the traffic shaping requirement established by the traffic shaping circuitry in the presence of collisions between requests from the transmission elements for each of one or more of the time slots, through the use of a linking of colliding transmission elements (Figs. 1 and 2; col. 4, lines 39-60).

Although Nguyen describes establishing a traffic shaping requirement, Nguyen fails to explicitly disclose traffic shaping circuitry coupled to the scheduling circuitry. It would have been obvious to include circuitry for traffic shaping when a traffic shaping requirement exists.

In addition, Delp teaches traffic shaping circuitry (Fig. 1; shaping 110) coupled to the scheduling circuitry (scheduler 102).

In view of this, it would have been obvious to one skilled in the art to modify Nguyen's system by incorporating Delp's traffic shaping circuitry coupled to the scheduling circuitry, so as provide circuitry for managing the transmission requests.

Nguyen fails to explicitly disclose moving at least one entry from a first location within the at least one time slot table to a second location within the at least one time slot table.

However, Delp teaches moving at least one entry from a first location within the at least one time slot table to a second location within the at least one time slot table (Fig. 7, block 708; col. 7, lines 5-16).

In view of this, it would have been obvious to one skilled in the art to move an entry from one location to another, for the purpose of moving an entry to an empty time slot and subsequently transmitting data associated with that entry.

Regarding claim 2, Nguyen teaches a time slot table (Fig. 2), however fails to explicitly disclose the time slot table stored at least in part in an internal memory of the processor. Examiner takes official notice that it is well known in the art for a time slot table to be stored in an internal memory of a processor. It would have been obvious to include a

Art Unit: 2616

time slot table in an internal memory of a processor, for the purpose of queuing data in a table that exists inside of the processor.

Regarding claim 3, Nguyen teaches a time slot table (Fig. 2), however fails to explicitly disclose the time slot table stored at least in part in an external memory coupled to the processor. Examiner takes official notice that it is well known in the art for a time slot table to be stored in an external memory coupled to a processor. It would have been obvious to include a time slot table in an external memory coupled to a processor, for the purpose of queuing data in a table that exists outside of the processor.

Regarding claim 4, Nguyen teaches a given one of the locations in the time slot table storing an identifier of one of the transmission elements that has requested transmission of a block of data in the corresponding time slot (col. 2, lines 53-57).

Regarding claim 5, Nguyen teaches one or more of the data blocks comprising data packets (col. 2, lines 15-19).

Regarding claim 6, Nguyen teaches the established traffic shaping requirement is substantially maintained by linking together identifiers of transmission elements generating requests that collide for a given time slot, from a single entry in the corresponding table location, and then scheduling the requesting elements for transmission in the order in which they are linked (col. 4, lines 31-60).

Regarding claim 7, Nguyen teaches the scheduling circuitry providing dynamic maintenance of the time slot table such that identifiers of requesting transmission elements are entered into the table locations on a demand basis (col. 4, lines 61-67; col. 5, lines 1-8).

Regarding claim 8, Nguyen teaches identifiers of the transmission elements comprising a structure for allowing a given one of the transmission element identifiers to be linked to another of the transmission element identifiers (col. 4, lines 31-38).

Regarding claim 9, Nguyen teaches the event of a collision between multiple transmission elements requesting a given one of the time slots, an identifier of a first one of the requesting transmission elements is entered into the corresponding location in the time slot table, and that identifier is linked to an identifier of a second of the requesting transmission elements, with similar linking between the identifier of the second requesting transmission element and an identifier of any subsequent one of the requesting transmission elements, a linked list of the multiple requesting elements thereby being created for the corresponding location in the time slot table (Fig. 2; col. 4, lines 61-67; col. 5, lines 1-29).

Regarding claim 10, Nguyen teaches upon transmission of a data block from one of the requesting transmission elements in the linked list of elements, a determination is made as to whether there are any further elements linked to that element, and if there are any further elements, the identifier of the next such element is determined and that identifier is written into the corresponding location in the time slot table (col. 5, lines 9-29).

Regarding claim 18, the combined teaching of Nguyen and Delp teach scheduling circuitry and traffic shaping circuitry. Nguyen fails to explicitly disclose a transmit queue coupled to the scheduling circuitry and the traffic shaping circuitry, the transmit queue supplying time slot requests from transmission elements to the scheduling circuitry in

accordance with the traffic shaping requirement established by the traffic shaping circuitry.

However, Delp teaches a transmit queue (Fig. 2; queue 204) coupled to the scheduling circuitry (scheduler 102) and the traffic shaping circuitry (Fig. 1; shaping 110), the transmit queue supplying time slot requests from transmission elements to the scheduling circuitry in accordance with the traffic shaping requirement established by the traffic shaping circuitry (col. 4, lines 28-52).

In view of this, it would have been obvious to one skilled in the art to modify Nguyen's system by include a transmit queue coupled to the scheduling circuitry and traffic shaping circuitry, so as to provide transmission requests to the scheduler.

Regarding claim 19, Nguyen teaches the processor comprises a network processor configured to provide an interface for data block transfer in a network. Nguyen fails to explicitly disclose data block transfer between a network and a switch fabric. Examiner takes official notice that it data block transfers between a network and a switch fabric are well known in the art. Thus, it would have been obvious to one skilled in the art to provide such data block transfer for the purpose of switching data through a switch fabric.

Regarding claim 20, Nguyen teaches the processor is configured as an integrated circuit (Fig. 3).

Regarding claim 21, Nguyen teaches a method for use in a processor for scheduling data blocks for transmission from a plurality of transmission elements (col. 2, lines 1-24), the method comprising: establishing a traffic shaping requirement for the

Art Unit: 2616

transmission of the data blocks from the transmission elements (col. 4, lines 39-45); and scheduling the data blocks for transmission in a manner that substantially maintains the traffic shaping requirement in the presence of collisions between requests from the transmission elements for each of one or more transmission time slots (col. 4, lines 39-60), utilizing at least one time slot table (see Fig. 2A), the time slot table comprising a plurality of locations (see Fig. 2A), each of the locations corresponding to one of the transmission time slots and being configured to store at least one entry, and further utilizing a linking of colliding transmission elements (Figs. 1 and 2; col. 4, lines 39-60).

Nguyen fails to explicitly disclose moving at least one entry from a first location within the at least one time slot table to a second location within the at least one time slot table.

However, Delp teaches moving at least one entry from a first location within the at least one time slot table to a second location within the at least one time slot table (Fig. 7, block 708; col. 7, lines 5-16).

In view of this, it would have been obvious to one skilled in the art to move an entry from one location to another, for the purpose of moving an entry to an empty time slot and subsequently transmitting data associated with that entry.

Regarding claim 22, Nguyen teaches the same limitations described above in the rejection of claim 21. Nguyen teaches a scheduler comprising a processor for scheduling data blocks for transmission from a plurality of transmission elements, utilizing at least one time slot table, the time slot table comprising a plurality of locations, each of the locations corresponding to a transmission time slot (Figs. 1 and 2).

Nguyen fails to explicitly disclose a machine-readable storage medium for use in conjunction with a processor, the medium storing one or more software programs for use in scheduling data blocks. However, Examiner takes official notice that it is well known in the art for storage mediums to store software programs and operate with processors.

Therefore, it would have been obvious to one skilled in the art to include such storage medium for the purpose of executing the programmed functions.

Allowable Subject Matter

4. Claims 16 and 17 are allowed.
5. Claims 11-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rhonda Murphy whose telephone number is (571) 272-3185. The examiner can normally be reached on Monday - Friday 9:00 - 5:30pm.

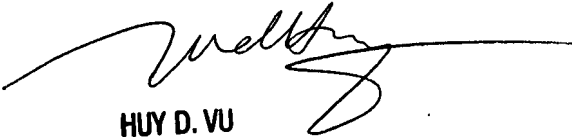
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2616

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Rhonda Murphy
Examiner
Art Unit 2616

RM



HUY D. VU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600